IN THE CLAIMS

1. (Currently Amended) A decoder for a wireless communication device comprising:

a calculator for calculating the modulo of a linear approximation of a MAX* function using:

$$\left(a(n)\bmod F + \frac{((b(n)\bmod F - a(n)\bmod F)\bmod F + C)}{2}\right)\bmod F$$; and

a selector for selecting a MAX* output value from the group a(n)modF, b(n)modF, and the calculated modulo based upon a determination as to whether a predetermined threshold value for $|a(n) - b(n)|$ has been met, where a(n) is a first state metric, b(n) is a second state metric, C is the predetermined threshold value and F is a value greater than $|a(n) - b(n)|$ ~~whereby to enable the calculator to calculate the modulo of the linear approximation of the MAX* function using a~~ $\cancel{\bmod F}$ ~~function of~~ $\cancel{a(n)\bmod F}$, $\cancel{b(n)\bmod F}$ ~~and~~ $\cancel{C}$; wherein

the decoder is arranged to receive an information bit and to use the selected MAX* output value to decode the received information bit.

2. (Canceled)

3. (Original) A decoder according to claim 1, wherein the calculator is arranged to calculate the modulo of the linear approximation of the MAX* function using:

$$\left(\left(\frac{(a(n)\bmod F + C)\bmod F + b(n)\bmod F}{2}\right)\bmod F + F * s\right)\bmod F$$, where s is equal to [a(m) XOR b(m)] AND [((a(m) XOR a(m-1)) and ((b(m) XOR b(m-1)] and a(m) b(m) a(m-1) and b(m-1) are the most significant bits of a(n) b(n) a(n-1) and b(n-1) respectively.

4. (Previously Presented) A decoder according to claim 1, wherein the determination is based upon the sign of *(a(n)modF–b(n)modF–C)modF* and the sign of *(b(n)modF–a(n)modF–C)modF*.

5. (Previously Presented) A decoder according to claim 1, wherein the selector is arranged to select and output the modulo of the linear approximation of the MAX* function if the value $|a(n)-b(n)|$ is less than the predetermined threshold value.

6. (Previously Presented) A decoder according to claim 1, wherein the value of F is to the power of two.

7. (Previously Presented) A decoder according to claim 1, wherein the selector is a multiplexer.

8. (Previously Presented) A decoder according to claim 1, wherein the calculator is an add module that is arranged to receive a(n)modF, b(n)modF and C.

9. (Currently Amended) A method ~~for generating~~ of decoding an information bit by a decoder using a MAX* value, the method comprising:

receiving an information bit by the decoder;

receiving by a selector, a first modulo state metric a(n)modF, a second modulo state metric b(n)modF and a predetermined threshold value C for $|a(n)-b(n)|$, where F is a value greater than $|a(n)-b(n)|$; ~~whereby to enable~~

calculating by a calculator, the modulo of a linear approximation of a MAX* function ~~to be calculated~~ using: ~~a $\mathrm{mod}\, F$ function of $a(n)\mathrm{mod}\, F$, $b(n)\mathrm{mod}\, F$ and C~~

$$\left(a(n)\mathrm{mod}\, F + \frac{((b(n)\mathrm{mod}\, F - a(n)\mathrm{mod}\, F)\mathrm{mod}\, F + C)}{2}\right)\mathrm{mod}\, F$$; ~~and~~

selecting by the selector, a value from the group a(n)modF, b(n)modF, and the calculated modulo based upon a determination as to whether the predetermined threshold value C for $|a(n) - b(n)|$ has been met; and

decoding by the decoder, the received information bit using the selected value.

10. (Canceled)

11. (Original) A method according to claim 9, wherein the modulo of the linear approximation of the MAX* function is calculated using: $\left(\left(\frac{(a(n)\,\mathrm{mod}\, F + C)\,\mathrm{mod}\, F + b(n)\,\mathrm{mod}\, F}{2}\right)\mathrm{mod}\, F + F * s\right)\mathrm{mod}\, F$, where s is equal to [a(m) XOR b(m)] AND [((a(m) XOR a(m-1)) AND ((b(m) XOR b(m-1)].